

REMARKS

Claims 1, 2, and 4-12 are pending. Claim 3 is currently canceled. Claim 9 is currently amended to remove a redundant "A". Reconsideration of the application is requested.

Upon review of the file, it was noted that the initialed Form PTO-1449 filed with the Information Disclosure Statement dated October 26, 2010 has not been received. It is requested that the Examiner initial the Form PTO-1449, a copy of which is enclosed for the Examiner's convenience, and return it to the undersigned attorney.

§ 103 Rejections

Claims 1 and 2 stand rejected under 35 USC § 103(a) as purportedly being unpatentable over Kumamoto (6794751) in view of Yamamoto (6623594). It is the Examiner's position that Kumamoto teaches a semiconductor surface protecting method whereby the circuit side of a semiconductor wafer is protected during the step of back side grinding of the wafer, comprising in order: providing a fluid surface protecting layer, coating the fluid surface protecting layer on the circuit side of the semiconductor wafers, placing a polymeric film material over the fluid surface protecting layer, and grinding said semiconductor wafer. The Examiner admits that Kumamoto does not explicitly teach the fluid surface protecting layer, hardened by light or heat, hardening said fluid protecting layer, and grinding said semiconductor wafer is done after hardening said fluid surface protecting layer. The Examiner asserts that Yamamoto teaches a method of using a protective layer, which is patterned on a wafer during grinding wherein the fluid surface protecting layer is hardened by light or heat, the fluid surface protecting layer is hardened and then the semiconductor wafer is ground after hardening said fluid surface protecting layer.

The Applicants respectfully traverse for at least the following reasons. With respect to independent claim 1 and as admitted by the Examiner, Kumamoto does not explicitly teach providing a fluid surface protecting layer which can be hardened by light or heat, hardening said fluid protecting layer, and grinding said semiconductor wafer is done after hardening said fluid surface protecting layer, in that order. Contrary to the Examiner's assertion, Yamamoto also

does not teach these steps. Yamamoto teaches "... fluidizing the hot-melt layer 1 with a heating means" and that the "hot-melt layer 1, which adheres to the wafer usually at an appropriate adhesive strength, can be softened by merely slightly heating." (see col 4., lines 43-67) This teaches away from Applicants' claimed invention that requires a fluid surface protecting layer which can be hardened by light or heat and then hardening said fluid protecting layer before grinding the semiconductor wafer. Yamamoto teaches hot melt sheets that can be fluidized or softened by heating (emphasis added). For at least this reason, neither Yamamoto nor Kumamoto teach or suggest all of the limitations of Applicants' claim 1. Furthermore, Yamamoto teaches that an ultraviolet-curing pressure-sensitive adhesive (A3, see col. 9 lines 6-12) can also be used as a pressure-sensitive adhesive layer along with a hot melt-layer (see Fig. 2 and col. 5, lines 1-36 of Yamamoto). However, Yamamoto (see Example 6) teaches that the adhesive is UV-irradiated "[A]fter grinding the back surface of the wafer..." Again, Yamamoto teaches away from Applicants' claimed invention which requires "grinding said semiconductor wafer [is done] after hardening said fluid surface protecting layer." For at least these reasons, the combination of Kumamoto and Yamamoto do not teach or suggest all of the limitations of Applicants' independent claim 1 as required by MPEP § 2143 in order to make a *prima facie* case of obviousness. As such, the Examiner's rejection is improper and should be withdrawn. Claim 2 depends upon independent claim 1 and adds further limitations thereto. Since independent claim 1 has been shown to be patentable, likewise claim 2 is patentable.

The rejection of claims 1 and 2 under 35 USC § 103(a) as purportedly being unpatentable over Kumamoto (6794751) in view of Yamamoto (6623594) has been overcome and should be withdrawn.

Claims 4-6, 9 and 10 stand rejected under 35 U.S.C. 103(a) as purportedly being unpatentable over Kumamoto/Yamamoto as applied to claim 3 above, and further in view of Hosomi (5726219). The Applicants wish to point out that claim 3 is cancelled. For the purpose of this response the Applicants are making the assumption that the Examiner meant as applied to claim 1 above. If this is incorrect, then the Applicants respectfully request that the Examiner issue another Office Action with the appropriate corrections. The Examiner's position is that

Kumamoto/Yamamoto does not explicitly teach a surface protecting sheet wherein before hardening of the surface protective layer, the protective layer has an elastic shear loss modulus less than its elastic shear modulus. The Examiner points to Hosomi as teaching a resin which contains the components necessary to form phenol-novolac epoxy (meth)acrylate resin and the Examiner asserts that since phenol-novolac epoxy (meth)acrylate resin is one of the main materials that can be utilized as in the surface protecting layers, it must have the characteristics laid out in claim 4.

The Applicants respectfully traverse for at least the following reason. The Applicants have already stated that the Examiner has not shown that the combination of Kumamoto and Yamamoto teach or suggest a fluid surface protecting layer which can be hardened by light or heat and then hardening said fluid protecting layer before grinding the semiconductor wafer. The Examiner also has not shown that Hosomi adds the missing teachings and in particular teaches hardening said fluid layer before grinding the semiconductor layer as required by Applicants' independent claim 1. In fact, Hosomi does not teach grinding a semiconductor layer at all. The Examiner has not shown that the combination of Kumamoto/Yamamoto further in view of Hosomi teach or suggest all of the limitations of Applicants' claim 1 upon which claims 4-6, 9 and 10 depend. As a result, the Examiner has not made a proper *prima facie* case of obviousness as required by MPEP § 2143 and the rejection is therefore improper and should be withdrawn. Dependent claims 4-6, 9, and 10 depend upon independent claim 1 and add further limitations thereto. Since independent claim 1 is patentable, likewise so are claims 4-6, 9, and 10.

The rejection of claims 4-6, 9 and 10 under 35 U.S.C. 103(a) as purportedly being unpatentable over Kumamoto/Yamamoto as applied to claim 3 above, and further in view of Hosomi (5726219) has been overcome and should be withdrawn.

Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as purportedly being unpatentable over Kumamoto/Yamamoto as applied to claim 3 above, and further in view of Komiya (511857). Again, the Applicants are assuming that the Examiner meant as applied to claim 1 above. If this is not the case then the Applicants respectfully request that the Examiner clarify

the rejection. As admitted by the Examiner Kumamoto/Yamamoto does not teach a surface protecting sheet according to claim 3(?) wherein the surface protecting layer contains at least one cationically polymerizable compound having two or more cationically polymerizable groups in the molecule wherein the cationically polymerizable compound is a phenol-novolac epoxy resin. The Examiner admits that Komiyama teaches the use of an adhesive tape which is composed of phenol-novolac epoxy resin and that this adhesive tape has adhesive/releasing properties which are well balanced, which initially was a problem in the prior art.

The Applicants respectfully traverse for at least the following reason. The Applicants have already shown that independent claim 1 is patentable over Kumamoto/Yamamoto. The Examiner has not shown that Komiyama teaches or suggests a fluid surface protecting layer which can be hardened by light or heat and then hardening said fluid protecting layer before grinding the semiconductor wafer as required by Applicants' independent claim 1. For at least this reason, the Examiner has not shown that the combination of Kumamoto/Yamamoto further in view of Komiyama teach or suggest all of the limitations of Applicants' claim 1 upon which claims 7 and 8 depend. As a result, the Examiner has not made a proper a *prima facie* case of obviousness as required by MPEP § 2143 and the rejection is therefore improper and should be withdrawn.

Claims 11 and 12 stand rejected under 35 U.S.C. 103(a) as purportedly being unpatentable over Kumamoto/Yamamoto/Hosomi as applied to claim 4 above, and further in view of Komiyama. It is the Examiner's position that Komiyama teaches the use of an adhesive tape which is composed of a phenol-novolac epoxy resin and has adhesive/releasing properties which are well balanced. However, as discussed above, the Examiner has not shown that Kumamoto/Yamamoto or Kumamoto/Yamamoto/Hosomi teach or suggest all of the limitations of Applicants' claim 1 upon which claims 11 and 12 ultimately depend. As a result, the Examiner has not made a proper a *prima facie* case of obviousness as required by MPEP § 2143 and the rejection is therefore improper and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance.

Examination and reconsideration of the application is requested.

Applicant invites the Examiner to a telephone interview if it will help advance this case to issuance.

Respectfully submitted,

16-November-2010
Date

By: /Stephen F. Wolf/
Stephen F. Wolf, Reg. No.: 45,502
Telephone No.: 651-736-9485

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833